FCPS Examinations Solved Questions

Q.No.1. A 60 years old man developed pulmonary embolism and was started on anticoagulants. Two weeks after discharge from hospital he returned with a h/o haematemesis and malena.

a) Give 5 essential investigations.
b) Give three differential diagnoses.
c) How would you manage this patient?

a) These include.

1. Complete blood count including platelet count. Severe thrombocytopenia can cause bleeding from upper G.I tract.
2. PT, APTT and INR, patient is on anti-coagulants e.g. warfain, which can induce prolongation of PT, INR and hence can cause bleeding.
3. Blood grouping and cross matching will be carried out as he might need urgent blood transfusion.
4. Electrocardiogram, to rule out concomitant myocardial ischemia, infarct or arrhythmia.
5. Upper G.I Endoscopy will help to look for definite pathology e.g. esophageal varices, esophageal or gastric erosions /ulceration or duodenal ulcer.

b) These are:-

1. Anticoagulant induced coagulopathy
2. Upper gastrointestinal bleed due to Acid Peptic disease.
3. Upper gastrointestinal bleed due to Portal hypertension (varices / gastropathy)

c) These steps are:

- He'll be admitted in ICU.
- I.V lines will be taken.
- Nasogastric tube will be passed.
- Anticoagulants will be stopped.
- He'll be given I.V vitamin K, as an antidote to warfarin.
- I.V proton pump inhibitors, omeprazole will be started (40mg, B.D.)
- Fresh frozen plasma will be arranged and transfused, if INR is significantly prolonged.
- Haematocrit will be maintained (25-30%), by giving blood transfusion.
- Urgent Endoscopy will be carried out.

Further management depend on the cause. In case of any bleeding ulcer, cauterization or injection of epinephrine will be given. Oesophageal varices will be treated with injection of sclerosant or by banding of the varix.

Q.No.2 A 52 year old factory worker was brought to the causality in a confused and drowsy state. He had been limping for 10 days. He had abdominal pain for the last 24 hours. He was afebrile, dehydrated and R/R of 18/min, B.P was 90/50. Abdomen was diffusely tender a)**What three signs would you look for to arrive at a diagnosis?**

b)What four immediate investigations would be helpful in confirming the diagnosis

c)Give three important steps in management.

a) Following three signs should be sought:

1. Anemia, due to haemolysis and sideroblastic anaemia.
2. Bluish line on gum margins due to deposition of lead sulphide.
3. Foot drop, wristdrop; motor neuropathy is characteristic of lead poisoning.

These features if present will strongly favour lead poisoning.

b) These are:

1. Haemoglobin with peripheral smear. This will show reduced haemoglobin with punctuate basophilia. (Basophilic stippling of RBC)
2. Serum lead levels
3. RBC's porphobilinogen deaminase and urinary porphyrinogen levels will be done. The former will be reduced, while latter will increase in case of acute intermittent porphyria.
4. CT-brain to rule out concomitant organic lesion.

c)

- He will be admitted in hospital and will not be allowed to go back to the same workplace. In future occupational rehabilitation will be arranged.
- Intravenous sodium calcium ededate(EDTA) 75 mg/kg will be given for 5 days as a chelation therapy for lead poisoning.
- He will be hydrated. I.V line will be taken and normal saline 0.9% will be given with monitoring of intake and output.

Q.No.3. A 14 year old girl with type-I diabetes mellitus is brought with one day history of fever ,altered consciousness and a single tonic clonic seizure.
She is found to be confused and irritable. Temperature is 102°C, Pulse 96/min, B.P 110/75, no neck stiffness. No abnormality in the chest.
Investigations: blood sugar 60mg/dl, urine sugar and ketone bodies nil. CSF protein 70 mg/dl, sugar 45mg/dl, cells 12/hpf mixture of polys and lymphos.
Her condition failed to improve while her blood sugar rose to 125 mg/dl after I.V glucose.

What three diagnoses would you consider?
Suggest two investigations with their significance.
Outline treatment of the most likely diagnosis

a) I would like to consider following three diagnoses:

1. Cerebral malaria as she has 1 day history of fever, altered consciousness, no signs of meningeal irritation and hypoglycemia.
2. Viral encephalitis, suggested by fever, altered consciousness, fits, raised CSF proteins, elevated cell counts on CSF examination.
3. Meningitis, will be a suspected diagnosis due to fever, drowsiness, raised CSF proteins and cell count with mixture of polys and lymphocytes.

b) These are:

1 Giemsa stained thick and thin films will be made. This may show characteristic trophozoites of plasmodium falciparum, thus confirming cerebral malaria.

2 MRI brain may show cerebral oedema especially enhanced signals in temporal lobes, characteristic of viral encephalitis.

c) Outline treatment of the most likely diagnosis.

- She will be admitted in high dependency unit
- I.V line will be taken.
- Naso gastric tube as well as foley catheter will be passed.
- Intravenous quinine dihydrochloride will be started. 20 mg / kg will be given over 4 hours, followed by 10mg/kg, 8 hourly.
- Monitoring of blood sugar will be done 2 hourly, as infection and quinine both can cause hypoglycemia.
- Careful monitoring of fluid balance will be done.
- Any evidence of superadded bacterial infection will be looked for, if needed, antibiotics will be given .
- Severe anemia may need blood transfusion.
- Monitoring of renal functions and hepatic functions will be done daily, as plasmodium falciparum can cause hepatic and renal failure.
- ECG will be done daily as quinine causes prolonged QT internal.
- She will be switched over to oral quinine as soon as she is able to take orally.

Q.No.4. A 30 year old business executive presented with malaise and yellowish discoloration of eyes from early childhood. He has jaundice and 3cm palpable liver below right costal margin.

a) **Give four diagnostic possibilities**
b) **Discuss the 2 important investigations that will help differentiate between these disorders.**

a) These are:

1. Gilbert syndrome; due to mild deficiency of glucoronyl transferase leading to unconjugated hyperbilirubinemia.
2. Dubin-johnson syndrome due to faulty excretion of bilirubin by hepatocytes causing conjugated hyperbilirubinemia.

3. Rotor's syndrome is also secondary to faulty excretion of bilirubin and is characterized by conjugated hyperbilirubinemia.
4. Hemolytic anaemia e.g. hereditary spherocytosis, glucose 6 phosphate dehydrogenase deficiency can also present with jaundice since childhood.

b) These are

1. Total serum bilirubin with conjugated and unconjugated bilirubin separately.

Patient with Gilbert or haemolytic anaemia will have unconjugated hyperbilirubinemia while patient with Dubin johnson and Rotors syndrome have conjugated hyperbilirubinemia. In patient with Gilbert syndrome, hyperbilirubinemia increases by fasting.

2. Peripheral blood smear and reticulocyte count.

Fragmented RBC's, spherocytes, elliptocytes or Heinz bodies can be seen with different types of haemolytic anaemias. Retic count is also elevated with haemolytic anemia.

Q.No.5. A 15 years old boy has presented with syncopal attacks. He also complains of chest pain and dyspnea on exertion. His mother died suddenly 10 years back due to heart problem.

On examination there is a systolic murmur at the lower sternal edge, exaggerated by valsalva maneuver.

What is the diagnosis?
Name diagnostic investigations with abnormalities you would expect.
How would you manage this patient?

a) Diagnosis is hypertrophic obstructive cardiomyopathy.
This has been discussed in detail in Q69.

Q.No.6. A 64 years old man complained of lassitude and weakness of 6 months duration, together with occasional lumbar backache over the same time period. Three months prior to his admission he had been found to be anemic and had been treated as an outpatient with oral and parenteral iron. With symptomatic improvement during this time he has noticed nocturnal frequency. For 3 days prior to admission he had been oliguric. There was a past history of peptic ulceration and a long history of migraine headaches.

On examination he looked unwell and was pale. Blood pressure 180/120mmHg. R/R 28 /min, a pericardial friction rub was present

Investigations:-

Hb	8.6gm/dl
MCHC	33%
Chest	X-ray showed enlarged cardiac shadow and upper lobe venous distension.
Urine	Showed trace of albumin with 1-2 cells/hpf.

a) Discuss five disorders in the differential diagnosis
b) Plan and justify your diagnosis
c) Give steps in the management along with their justifications.

a) Five likely diagnoses can be:

1. Chronic renal failure due to diabetic nephropathy, as he gives history of nocturia with weakness and lassitude.
2. Chronic renal failure due to obstructive uropathy (stone / prostatic enlargement) this is suggested by occasional lumbar pain, followed by oliguria.
3. Chronic renal failure due to multiple myeloma as he is an elderly male, with generalized weakness, lassitude and anaemia, Nocturia and peptic ulceration can be due to hypercalcemia.
4. Chronic renal failure due to analgesic nephropathy as there is a long history of migraine and he might have taken various analgesics for a long period.
5. Chronic renal failure due to chronic pyelonephritis as he has history of lumbar pain.

b) Planning and justification of diagnosis:

- The most likely diagnosis is chronic renal failure due to NSAIDS induced tubulo-interstitial nephritis. He has developed complications of uremia. That is uncontrolled hypertension, uraemic pericarditis and pulmonary edema. He is also anaemic. There is no past history of diabetes mellitus, fever, haematuria pyuria and passing stones in the urine. But he does give history of migraine headaches for long period for which he might have taken NSAIDS. NSAIDS induced tubulo-interstitial nephritis is the third leading cause of intrinsic renal failure. Proteinuria (Traces) and prescence of 1-2 white cells/HPF also supports the diagnosis. Other features may include white cells casts, red cell cast / HPF. Blood picture may show eosinophilia.

c) Management along with their justifications:

- He will be admitted in the ward
- I.V line will be taken.
- Renal replacement therapy in the form of dialysis will be arranged. Regardless of the level of creatinine and serum potassium, he needs dialysis due to pericarditis and fluid overload.
- There after intake output monitoring will be done.
- Echocardiogram will be done to check for cardiac tamponade or pericardial effusion. Pericardiocentesis will be planned in case of clinical deterioration.
- Control of blood pressure is important in addition to dialysis he will be given antihypertensive like calcium channel blockers and alpha-blockers along with diuretics.
- He is anaemic too. Improvement in haemoglobin levels will help to improve his weakness. Moreover it will reduce the fluid overload. He will be started on s/c erythropoietin on weekly basis. Intravenous iron will be given if required.
- Protein-restricted diet will be given. Phosphate binders (ca carbonate or acetate) will be given in case of hyperphosphatemia.

Q.No.7. A previously healthy 30 years old young gentleman was found to have to have raised ALT (twice normal) during routine investigations. Repeated LFT's showed persistent raised ALT (around twice normal).

a) What are the five possible causes for his raised ALT?
b) Name five investigations that you would advise.
c) What precaution would you tell him before a final diagnosis is reached.

a) The five possible causes of his raised ALT are:-

1. Chronic viral hepatitis.
2. Wilson's disease.
3. Alcoholic liver disease.
4. Autoimmune hepatitis.
5. Non-alcoholic steato hepatitis (NASH).

b) These investigations include:

1. Viral serology; anti HCV antibodies and HBsAg along with Anti HBc IgM and IgG antibodies.
2. Repeat LFT's will be done to look for AST, alkaline Phosphatase and Reverse of ALT : AST ratio, which is typical of alcohol liver disease along with raised gamma-GT.
3. ANA and Anti-LKM antibodies for autoimmune hepatitis.
4. Ultrasound abdomen to look at the hepatic echotexture, size and width of biliary channels, portal vein or any evidence of splenomegaly or ascites.
5. Liver biopsy, to look at the degree of inflammation, fibrosis and characteristic histopathlogical changes of the underlying disorder.

c) The patient will be advised to discontinue alcohol if he is taking it.

- If he is obese then he will be advised to reduce weight.
- He will be asked to avoid hepatotoxic drugs.
- Use of disposable sterilized syringes and screening of blood before transfusion will be advised for the future.
- Screening of the other family members will be done.

Q.No.8. A thirty six year old man presents with a long history of low grade fever, sinus discharge on many occasions, haemoptysis and difficulty in breathing since about 5 years. He had received broad spectrum antibiotics and a full course of ATT, without benefit.

On examination, temperature 99.6°F, resp rate 24 per minute, B.P 110/70 mmHg and pulse 100/min. Nasal septal perforation with bridged nose. Coarse crepitations and bronchial breathing over mid-thorax posteriorly. On presentation, patient had following investigations. Urine D/R albumin ++, RBC- plenty, pus cells – nil:

CBC mild anemia, ESR – 88mm 1st hour.

Chest x-ray revealed two big thick walled cavities in each lung in mid zones.

a) **Name the 4 lab investigations and justify how these will help you to reach an appropriate diagnosis and subsequent management.**

a) Following 4 lab investigations are required to reach a diagnosis.

1. p-ANCA and c-ANCA; these anti-neutrophilic cytoplasmic antibodies help in the diagnosis of small vessel vasculitis including chrug-strauss syndrome microscopic polyangitis and Wegener's granulomatosis. c-ANCA or anti-proteinase 3 antibodies has a high specifity for Wegener's granulomatsis (90%).
2. Transthoracic lung biopsy has the maximum yield. It'll show characteristic histologic features of Wegener's granulamatosis. These are vasculitis, granulomatous inflammation, geographic necrosis and acute/chronic inflammation.
3. Renal biopsy will demonstrate segmental necrotizing glomerulonephritis.
4. S/creatinine and blood urea, to demonstrate renal insufficiency. Once proteinuria and haematuria develops, further renal deterioration is quite rapid.

b) **Management:**

- He'll be admitted in the ward
- He'll be started oral steroids, prednisolone, 1mg/kg along with cyclophosphamide. Cyclophosphamide will be continued for 3 months and then it will be substituted by methotrexate or azathioprine, for at least 12 – 15 months.
- Meanwhile, renal function will be continuously monitored and acute renal failure will be treated with dialysis.

Q.No.9. A 42 years old lady, diabetic for the last 8 months recently developed respiratory tract infection and since last 2 days was feeling gradual weakness as the day passed. She also complained of double vision, nasal speech and nasal regurgitation of food. On examination, all her cranial nerves are intact and reflexes are brisk.

a) **What is the diagnosis?**
b) **What test will you carry out to confirm?**
c) **What will be your management?**

- She is suffering from myasthenia grasis.

This has been discussed in detail inQ51.

Q.No.10. A 26 years old house wife with primary infertility with 3 years h/o generalized aches and pains, backache and polyarthralgias. She had poor appetite and had lost weight. B.P was normal and there was no swelling of joints. She had a waddling gait.

Lab inv:-

Blood ESR	44mm
WBC	6000/cmm
Platelets	135000/cmm
Hb	9.7 g/dl
MCV	83fl
S. calcium	1.84 mmol/L (N: 2.12-2.65).
Albumin	42g/L
Inorg. Phosphate	1.46 mmol/L (0.8-1.45 mmol/L)

Alkaline Phosphatase 1358 U/L (N: 65-306)
Urine analysis: Normal except trace protein.
X-ray pelvis: Tri-radiate pelvis, patchy sclerosis and rarefaction with a lytic lesion in the inferior pubic ramus.
Bone scans report: Metabolic bone disease.

a) What metabolic bone disease is she likely to have?
b) What further investigations you would like to carry out?
c) Mention briefly the management.

a) The most likely diagnosis is Osteomalacia with secondary hyperparathyroidism. The low calcium, raised inorganic phosphate, raised alkaline Phosphatase and combination of sclerotic / lytic lesions in the bone suggests the diagnosis.

b) Following investigations will be required:-

- Serum PTH levels by immunoassay; will be increased.
- Serum vitamin D (25-OH D) levels will be determined. These will be low.
- Bone Biopsy, will show significant un-mineralized osteoid.
- FSH/LH levels to investigate primary infertility. Due to underlying disorder (malabsorption, organic illness), there are decreased frequencies of GnRH pulses, so her FSH, LH are likely to be low-normal.
- Stool c/e with sudan staining for fat globules to rule out underlying malabsorption.
- Serum urea, creatinine, as renal failure can cause both osteomalacia and secondary hyperparathyroidism.

c) Briefly management:

She will be given calcium and vitamin D replacement. Vit. D deficiency will be treated with oral ergocalciferol (D_2), 50,000 I.U once weekly for 6- 12 months, followed by 1000 I.U daily.

Calcium replacement with either calcium carbonate or citrate will be carried out. Correction of hypocalcemia & hypovitaminosis D will tend to correct secondary hyperparathyroidism and hyperphosphatemia.

- Adequate exposure to sunlight will be advised.
- Treatment of underlying cause will be done.

Q.No.11. A 40 years old lady presented in OPD with history of generalized weakness, low grade fever and easy fatigability of 4 years. She also reports of decrease in appetite, significant loss of weight with constant nausea over the past 16 months. She also insists that her skin colour was fair which have recently changed to black over the body sparing hands and feet. Her past family history is insignificant.

Vital signs temperature 99°F, pulse 88/min, BP 85/50 mmHg, respiratory rate 22/min. Dark brown pigmentation is present all over the body, especially over the elbows and skin creases. Rest of the clinical examination is normal.

a) **Name 6 lab investigations and justify how these will help you to reach the most appropriate diagnosis and subsequent management.**

a) She is most likely suffering from adrenal insufficiency.
To investigate her disease following lab tests are required:-

1. Complete blood count; will show anaemia of chronic disease, neutropenia, lymphocytosis and moderate eosinophilia.
2. Serum electrolytes; hyponatremia (90%) with hyperkalemia (65%) is characteristic of addison's disease.
3. Short synacthen test; 0.25 mg of synthetic ACTH will be given parenterally. Then estimation of serum cortisol is done between 30 -60 minutes. Serum cortisol less than 20 ug/dl indicates addison's disease.
4. Plasma ACTH levels will be elevated due to loss of feedback inhibition.
5. Anti-adrenal antibodies are elevated in 50% of cases of autoimmune adrenal insufficiency. This will help to ascertain the likely cause of adrenal insufficiency.
6. CT abdomen may show small non-calcified adrenal in autoimmune addison's disease, while adrenals are enlarged due to granulomatous or metastatic disease. Intra-adrenal calcification is seen in case of tuberculous Addison's disease as well as with hemorrhages, fungal infection, or melanoma.

MANAGEMENT

- Any evidence of infection will be sought and treated vigorously.
- Dehydration will be prevented and treated by giving normal saline parenterally.
- She will be started on oral glucocorticords either hydrocortisone (15-25 mg) or predinisolone (2-3 mg) daily. Two third will be given in the morning and one third in the evening. Further adjustments in dose will be done after the clinical response.
- Fludrocortisone acetate is given as a part of mineralcoorticord replacement.
- She will be advised to wear a medical alert bracelet, indicating that she is taking glucocorticords for adrenal insufficiency.
- Treatment of underlying cause e.g. anti-tuberculosis treatment of tuberculosis addison's disease will be done.

Q.No.12. A 42 years old man was brought to CCU with history of 4 hours severe central chest pain and dyspnea. His past history was unremarkable. Examination was normal. ECG showed sinus rhythm with 2mm ST-segment elevation in leads V_1-V_3. All other investigations like CBC, U/E and blood glucose were normal. A diagnosis of myocardial infarction was made. He was given analgesics, antiemetics, I/V thrombolysis, aspirin and heparin infusion. His pain settled. Four days later, he developed a purpuric eruption and nail bed infarct. The rest of investigations were normal.

a) **Suggest the possible reasons for the development.**
b) **Suggest the useful investigations**

a)

- The development of purpuric eruption and nail fold infarcts in a patient who has suffered from myocardial infarction and has received I / V thrombolysis and heparin infusion can be explained by:-
- Heparin induced thrombocytopenia, due to development of antibodies against platelet factor 4. It leads to complement mediated aggregation of platelets and hence thrombosis at variable sites.
- Vasculitis e.g. polyarteritis nodosa which can lead to myocardial infarction as well as the purpuric eruption and nail fold infarcts.
- Cholesterol embolism also presents with purpuric eruption and can have nail fold infarcts, too.

b) These are:-

Complete blood count with ESR; Platelet count will be reduced in heparin induced thrombocytopenia. Raised ESR may be seen with vasculitis.

Antibodies against platelet factor 4 will be done. These are usually raised in case of heparin induced thrombocytopenia.

Differential leucocyte count may demonstrate eosinophilia, which is seen in cholesterol embolism.

Repeat ECG will be done to rule out myocardial ischemia.

Urine C/E may show proteinuria and haematuria in case of vasculitis.

Renal biopsy may be done if required. This will help to document any vasculutides or cholesterol embolism.

Q.No.13. A 30 years old man was brought to outpatient by his friend 10 days prior to admission. He developed high grade fever with chills and evening rise. He had cough with scanty sputum in last 2 months. Fever did not settle despite various antibiotics and antmalaria therapy. He had to miss his annual business trip to South Africa due to his illness. He has never smoked. On examination he was pale, ill looking with temperature 39.2°C, Pulse was 120/min, regular, B.P was 120/80 mmHg. He had white coated tongue and cervical adenopathy. Chest examination was normal. Cardiac auscultation revealed pericardial rub. Other systems were normal.

Investigations:-

Hb	10.8g/dl
ESR	60 mm in first hour
TLC	5.2×10^9/L
Neutrophils	88%
Lymphocytes	10%,
Eosinophils.	2%

CXR showed enlarged cardiac shadow with b/l hilar adenopathy.

a) **List your differential diagnosis in order of priority.**

b) How will you investigate this patient?

a) **These are:-**
- Lymphoma
- Tuberculosis
- Infectious mononucleosis
- HIV seroconvesion
- Toxoplasmosis
- Syphilis
- Sarcoidosis
- Brucellosis

b) Following investigations will be sent
- Sputum for AFB, to look for mycobacteria tuberculosis.
- Bronchoscopy followed by bronchial washings these washings will be subjected for ZN staining, C/S and malignant cells.
- In sarcoidosis, there is reversal of CD_4 to CD_8 ratio.
- Excision biopsy of cervical lymph nodes. It will show the characteristic histological changes of lymphoma, tuberculosis, sarcoidosis.
- CT scan chest followed by CT guided fine-needle aspiration of hilar lymphnodes. This will not only help us to determine the stage of lymphoma but will also enable us to rule out other causes.
- Ultrasound abdomen to look for hepatosplenomegaly or intra abdominal lymphnodes.
- Peripheral smear examination to look for atypical lymphocytes seen in infectious mononucleosis, HIV or toxoplasma.
- VDRL will be done to rule out syphilis.
- HIV enzyme linked immunosorbent assay.

Q.No.14. A 40 years old man who received two years ago 6cycles of chemotherapy, each cycle consisted of cyclophosphamide, doxorubicin, vincristine and prednisolone for non-hodgkin's lymphoma in chest and abdominal ascites. The patient got complete remission. His last visit was 3 months ago at which time he had no evidence of recurrent lymphoma, felt well and had normal laboratory examination. The man was brought in emergency room with a history of severe fatigue. At this time, his physical examination showed a purple discoloration of the finger tips, ears and nose and the patient is some what pale. There is no evidence of peripheral lymphadenopathy. Lab studies: white cell count 10,000/dl, neutrophils 60%, Lymphocytes 10%, band cells 10 %, monocytes 10 % , eosinophils 3% , basophils 1%, metamyelocytes 2%, myelocytes 1% and nucleated red blood cells 1%. Haematocrit 28%, Platelet count 300,000/dl, total bilirubin 51 mmol/L and direct bilirubin 5.1 mmol/L.

a) **What is new problem with this patient?**
b) **What investigations would you do to reach the diagnosis of this new problem?**
c) **What steps will you take in treating this situation?**

d) Discuss its differential diagnosis.

a) Patient has developed cold agglutinin disease /cold autoimmune hemolytic anemia. It can occur with the background lymphoproliferative disorder.
The features suggesting this disorder are
History of lymphoma
Purple discoloration of hands, feet, ears, nose.
Decreased haematocrit, 28%.
Presence of nucleated RBC's.
Raised indirect bilirubin, due to haemolysis.

b) Following further investigations will be done:-
- Retic count will be elevated due to haemolysis
- Serum haptoglobin will be reduced
- Urine C/E will show urobilinogen but no bilirubin.
- Coomb's test will be positive
- Cold agglutinin titer will be done. This will be elevated. These are IgM antibodies directed against I antigen on the surface of RBC.

c) He will be given steroids, prednisolone, 1mg /kg daily.
- He will be advised to avoid exposure to cold.
- In case of lack of response to steroids, immunosuppressant drugs like cyclosporin or cyclophosphamide can also be given.
- Splenectomy can be advised in resistant cases.
- Anti-CD 20, Rituximab can also be used for the treatment of resistant cases.
- Treatment of the underlying cause will be done as well.

d) Differential diagnosis include:-
- Acute myelomonocytic leukemia, as he has raised monocytes, and probability of AML can not be ruled out.
- Cryoglobulinemia, cold precipitable antibodies, can also develop in lymphoproliferative disorder.
- Cold agglutinin disease due to:-
  - Mycoplasma
  - Infectious mononucleosis.

Q.No.15. A taxi driver 60 years old, presented with dyspnea, right sided chest pain on inspiration and confusion. He used to smoke 30 to 40 cigarettes per day for the past 36 years but stopped smoking 3 years ago. He had lost 6 kg weight during the past 2 months. The patient received erythrocin 500 mg QID for one week from his doctor without much relief. According to his son, he had been extremely thirsty and was waking several times each night to pass large volumes of urine and talks irrelevantly.
Investigations:-
Blood, Hb 10g/dl

WCC 14×10^9/L
Platelet 100×10^9/L
ESR 80 mm fall 1st hour
Glucose 8.8 mmol/L
Urea 12mmol/L, creatinine, 180µmol/\L
Sodium; 134 mmol/L, K 4 mmol/L
Urine glucose nil, ketones +.

a) **What is the provisional underlying diagnosis?**
b) **Give five possible reasons for his confusion.**
c) **What are the most likely reasons for his polydipsia and polyuria?**
d) **What is his prognosis?**

a) The underlying provisional diagnosis is bronchogenic carcinoma. The keypoints leading to this diagnosis are;

- Chronic smoker.
- Non-resolving pneumonia.
- Significant weight loss.
- Symptoms of paraneoplastic syndrome (polyuria, polydispia due to nephrogenic diabetes insipidus secondary to hypercalcemia).
- Low haemoglobin, rasied ESR.

b)

Five reasons for his confusion are:-
a) Hypercalcemia
b) Dehydration.
c) Septicemia.
d) Hypoxia.
e) Cerebral metastasis.

c) He has developed nephrogenic diabetes insipidus due to hypercalcemia. Hypercalcemia can be due to bony metastases or due to secretion of PTH related peptide. Hypercalcemia leads to insensitivity of renal tubule to ADH hence diabetes insipidus.

d) The patient has extensive disease possibly with metastases. The overall prognosis depends on the type of underlying bronchogenic carcinoma. With extensive disease, the 2 year survival is 2%.

Q.No.16. A 28 years old healthy weight lifter during a competition of weight lifting develops sudden severe pain in the right of chest and became dyspneic and also felt tightness in the chest. The man became increasingly breathless.
On examination, he is tachypnoeic with a respiratory rate of 26/min, pulse rate 104/ min, B.P. 100/70 mmHg. He had cyanosis, temp 98.4 °F.

a) **What is your diagnosis, give justifications?**
b) **Discuss your differential diagnosis, for this patient.**

c) What further examination and investigation you would like to carry out giving justification.

d) Describe your initial management and further steps in treating and preventing this disease. Justify

a) My diagnosis for this patient is right sided pneumothroax. He has developed right sided chest pain, dyspnea and chest tightness during weight lifting. Tachypnea and cyanosis also favours a pulmonary cause.

b) This include:-

- Aortic dissection; a young patient with sudden onset of chest pain, tachycardia and hypotension can be explained by this diagnosis.
- Aortic stenosis / hypertrophic obstructive cardiomyopathy can also present with chest pain and dyspnea.
- Myocardial infarction; chest pain, dyspnea after exertion can be due to acute coronary syndrome.

c) While examining him,

- Would like to inspect his chest for any bulge, retraction or any other deformity, both from the back as well as the anterior aspect of the chest.
- Palpation of his chest for measurement of chest expansion and position of trachea will be done. Tension pneumothorax will lead to deviation of trachea. Position of apex beat will be assessed. Double apical impulse may be felt with HOCM.
- Percussion of the chest all will reveal hyperresonant percussion note.
- Auscultation of chest will show decreased breath sounds.
- Auscultation of precordium may indicate normal heart sounds with occasional systolic click (pneumothorax).
- Ejection systolic mirmur can also be heard with S4 (aortic stenosis /HOCM).

I would like to request following investigations:-

- Chest x-ray will show hyperflated lungs on left side and pneumothorax with collapsed lung on the right side.

Aortic dissection can be seen as widening of mediastinum.

- Arterial blood gasses, to determine the severity of hypoxemia.
- Electrocardiogram (ECG), to see for specific changes of myocardial infarction, left ventricular hypertrophy due to aortic stenosis or non-specific ST-T wave changes with pneumothorax.
- If the diagnosis is still not clear, his transthoracic echocardiogram to look for valvular abnormalities, akinetic / hypokinetic myocardium and aortic / cardiac dimension will be done.
- Cardiac enzymes for acute coronary syndrome.
- To investigate the cause of pneumothorax ,sputum for AFB and if required analysis of bronchial washings will be done

d)

- As the patient is symptomatic, he is tachypneic, tachycardic and is cyanosed, so drainage of the pneumothorax is required. Depending on the size and prescence or absence of tension pneumothorax, the method of drainage will be chosen. For large and tension pneumothorax, chest tube drainage with under water seal is required.
- He will be advised not to smoke in future. As smoking predisposes to emphysema and hence can lead to pneumothorax.
- Deep sea and scuba diving will be prohibited.
- He will be advised to discontinue weight lifting too. Undue physical activity and lifting heavy weights can predispose to pneumothorax in susceptible individual. Counselling regarding change of occupation and limited physical activity will be done.

Q.No.17. A 50 years old lady is referred to medical OPD by the ophthalmologist. She is a diagnosed case of rheumatoid arthritis for 15 years, which is at present quiescent. She had been visiting the ophthalmologist with repeated attacks of conjunctivitis.
On examination she appeared well; she has conjunctivitis and two tender cervical lymph nodes measuring 2 × 2 cm and a moderate sized palpable spleen. Initial investigations shows: Hb 11.5 gm/dl, Normal TLC/DLC and ESR 38mm/1st hour. ANF and RA factor are positive.

a) Discuss 4 disorders in the differential diagnosis.
b) Suggest and justify 5 investigations you would carry out.
c) Briefly describe four steps in the management plan.

a)

1. Rheumatoid arthritis with ocular complications, Rheumatoid arthritis can cause scleritis, conjunctivitis and uveitis. Similarly lymph nodes and splenomegaly can also be a feature of rheumatoid arthritis.
2. Mixed connective tissue disease (**MCTD**); she might have overlap features of more than one rheumatic disease, as she has ANF and RA factor positive. ANF is positive in only 20% of patients with rheumatoid arthritis.
3. Sjogren's syndrome; is associated with rheumatoid arthritis. Repeated attacks of conjunctivitis can be due to keratoconjunctivits sicca.
4. Lymphoproliferative disorder e.g. lymphoma, as she has cervical lymph nodes with splenomegaly. Patients with Sjogren's syndrome also have increased incidence of lymphoma.

- Other causes of adenopathy with splenomegaly e.g. infectious mononucleosis also need to be investigated.

b)

1. Antibodies against antigen SS-A and SS-B. These are present in 60 – 70 % of patients with Sjogren's syndrome.
2. Antibody to ribonuclear protein (RNP), usually present in patients with mixed connective tissue disease (MCTD).

3. Schirmer test; to measure the quantity of tears secreted. This is a useful ocular diagnostic test. It will help to diagnosis keratoconjunctivits sicca.
4. Lip biopsy, if demonstrate lymph node aggregates in lymphoid follicles, the diagnosis of Sjogren's syndrome will be confirmed.
5. If required, lymph node biopsy will be done to look for any underlying Lymphoproliferative disorder.

c) She will be managed symptomatically.

1. She will be advised artificial tears, to relieve ocular symptoms and prevent further desiccation.
2. The treatment of underlying disease like rheumatoid arthritis will not be altered. The use of disease modifying agents will be continued according to the severity of the disease.
3. Decongestants and atropinic drugs will be avoided, as they worsen the keratoconjunctivits sicca and xerostomia.
4. Investigation and management of associated conditions e.g. pancreatitis, obstructive lung disease, renal tubular defects will be carried out.

Q.No.18. A 60 years old man came in OPD with history of attack of recurrent loss of vision in left eye. Each attack lasted 3-4 minutes with complete recovery of vision.

What is the likely diagnosis?
What five clinical signs you would look for?
Suggest 5 appropriate investigations.
How would you manage this patient?

a)

- He is having amaurosis fugax due to transient ischemic attacks.

b) **Following 5 clinical signs will be looked for:-**

1. Pulse, for rate, rhythm or specific character. Irregularly, irregular pulse suggests atrial fibrillation, a common cause of thromboembolic events.
2. Blood pressure; hypertension is one of the risk factor for the atherosclerotic disease.
3. Xanthelasmas; may indicate dyslipidemias.
4. Precordial examination, to look for displaced apex beat, or any valvular disorder.
5. Auscultation for carotid bruit, will indicate carotid stenosis, another cause of cerebral ischemia.

c) **He needs following investigations:-**

1. CT brain, to look for cerebral infarct.
2. Electrocardiogram, for underlying myocardial infarct, ischemia, atrial fibrillation or any other arrhythmia.
3. Fasting lipid profile, to rule out dyslipidemia.

4. Echocardiogram, to look for ventricular dimensions, ejection fraction, valvular apparatus and LV clot.
5. Carotid Doppler, to rule out any underlying carotid stenosis.

d) After ruling out any haemorrhage on CT scan, he will be started on antiplatelet, aspirin 325 mg daily, orally. Risk factors for atherosclerotic disease will be controlled. Effective control of blood pressure, good glycemic control and use of statins for fasting lipids will be done, if required.

Similarly, regular exercise, discontinuation of smoking and weight reduction will be recommended.

Carotid Doppler will help to guide further management. Carotid stenosis (70-99%) will be treated by carotid endarterectomy.

Q.No.19. A retired 60 years old school teacher is brought to the hospital with history of cough and fever for the past one week. He also gives history of backache for last 3 months and difficulty in walking for one day. He had appendicectomy at the age of 25 years and suffered an attack of pneumonia three months ago which was treated adequately. He made an uneventful recovery but often feels weak and tired. He used to smoke one pack of cigarettes a day for the past 40 years but stopped smoking three months ago.

On examination temperature 39°C, pulse 96/min, regular B.P. 110/70 mmHg. Pallor, tenderness over the vertebral spine. Trachea central, bilateral scattered rhonci are heard throughout both lungs. The rest of the examination was normal.

Investigations showed: Hb 10 g/dl, WBC 10,000/mm^3, ESR 130 mm/ 1st hour, urine proteins +, sputum for AFB –ve

a) Give three disorders you would consider in differential diagnosis.
b) Suggest five investigations with justifications.
c) Give five initial steps in the management of this patient, with justification.

a) Following three disorders will be considered in differential diagnosis:-

1. Bronchogenic carcinoma with bony metastases as he was a smoker for the past 40 years and also giving history of weakness, fatigue and backache. Clinical examination reveals vertebral tenderness with rhonci all over the chest.
2. Chronic obstructive pulmonary disease with caries spine.
3. Multiple myeloma, as he is an aged male with bone pains and tenderness and he has markedly raised ESR.

b)

1. Chest x-ray to look for hyper inflated lung fields, non-homogenous opacity, hilar / mediastrial adenopathy, any evidence of tuberculosis or pleural effusion. All these lesions can be due to malignancy or tuberculosis.
2. Bronchoscopy with bronchial washings and transbronchial biopsy of the lesion, if any. Bronchial washings will be subjected for analysis (AFB, malignant cells).

3. CT chest, again to confirm and stage bronchogenic carcinoma. Hilar and mediastnial adenopathy will be confirmed.
4. X-ray of the involved vertebrae (AP and lateral view), may show collapsed vertebrae due to tuberculosis, or multiple lytic lesion due to metastases or multiple myeloma.
5. Protein electrophoresis, for monoclonal bands characteristic of multiple myeloma.

c)

He will be admitted in the medical ward.
After sending the cultures (Blood, sputum), empirical antibiotic cover will be started.
He will be nebulized with beta-2 agoinst, to relieve his bronchospasm. Arterial blood gases will be checked. O_2 inhalation will be given accordingly.
Neurosurgical consultation regarding the vertebral column involvement will be taken.
Adequate analgesia will be given for his pain.
Antipyretics and I/V fluids (Normal saline) will be given to relieve his fever and improve his hydration status respectively.
Specific therapy: - depends on underlying cause. He will be started on anti-tuberculosis therapy for tuberculosis. Treatment of bronchogenic carcinoma or myeloma will be planned after consultation with oncologist. (Specific chemotherapy (VAD for myeloma), (etoposide, cisplatin for bronchogenic carcinoma) will be given.

Q.No.20. A 50 year old male, smoker for 10 years presents in casualty department with severe shortness of breath and unconsciousness for 12 hours. On enquiry, his son informs that his father had persistent cough and progressively increasing shortness of breath for the last 4 years.
On examination, pulse is 90/min, B.P. is 130/75 mmHg. He has moderate clubbing and cyanosis. Respiratory rate 30/min, chest expansion less than 1cm and bilateral basal crepitations.
X-ray chest shows loss of volume and honey-comb appearance.

a) Give the most likely diagnosis and justify it.
b) Discuss 4 important investigations useful in diagnosis and management of this case.
c) Discuss 4 important steps in the short and long term management.

a) The most likely diagnosis is cryptogenic fibrosing alveolitis.
Fibrosing alveolitis is suggested by following features:-

- Progressive shortness of breath.
- Persistent cough.
- Clubbing and cyanosis.
- Reduced chest expansion.
- B/L basal crepitations.
- Reduced lung volume and honey comb appearance as seen on chest X-ray.

It is probably cryptogenic / Idiopathic, as no history of occupational exposure, use of chemotherapeutic drugs or systemic disease is available.

b)

1. Arterial blood gases will show arterial hypoxemia with normal or low PaCo2. This is due to alveolar capillary block and ventilation-perfusion mismatch.
2. High resolution CT chest will show characteristic reticular shadowing and ground glass opacification.
3. Bronchoalveolar lavage may show increased number of macrophages and neutrophils.
4. Transbronchial lung biopsy, to rule out secondary cause of pulmonary fibrosis and determine the type of cryptogenic pulmonary fibrosis.

c) I- For short term management, following 4 steps will be taken:-

1. He will be given oxygen by face mask.
2. He may need ventilatory support, as he is cyanosed, unconscious and severely short of breath.
3. He will be started on steroids, hydrocortisone intravenously.
4. In case of unresponsiveness, azathioprine or cyclophosphamide will be given.

II- In long term management, following steps will be taken:-

1. He will be counseled regarding domiciliary oxygen.
2. Discontinuation of smoking will be suggested.
3. Treatment with prednisolone, 30 mg will be prescribed for at least 2-3 months.
4. In case of unresponsive, severe disease, single lung transplantation will be offered.

Q.No.21. A 30 years old female, known case of Grave's disease with regular treatment, after a D & C for inevitable abortion developed high grade fever, vomiting, diarrhea and delirious state. Examination revealed pulse140/min regular, B.P. 110/80 mmHg, temperature 104°F, perspiring and dehydrated with normal chest and abdominal examination. There were no signs of meningeal irritation.

a) **What is the diagnosis?**
b) **What is the differential diagnosis?**
c) **What investigations will you perform?**
d) **How will you manage this patient?**

a) The diagnosis is thyroid storm / crisis. This is suggested by previous history of Graves's disease, irregular treatment and stress in the form of D&C. She is hyperpyrexial, tachycardic and delirious, all features suggestive of thyroid crisis.

b)

The differential diagnosis include:

- Septicemia due to pelvic inflammatory disease.

- Acute gastroenteritis leading to electrolyte imbalance and septicemia.
- Viral encephalitis.

c)

1. Complete blood count may show anaemia, leucocytosis, thrombocytopenia due to septicemia, DIC.
2. Blood cultures will be sent.
3. Free T_3, T_4 and supersensitive TSH will be done. This will show elevated free T_3, T_4 and reduced levels of TSH.
4. Stool C/E & C/S to rule out gastroenteritis.
5. CT brain followed by lumbar puncture to rule out viral encephalitis.
6. High vaginal swab will be taken and sent for culture & sensitivity.

d)

- She will be admitted in high dependency unit.
- Propanolol.
- Potassium iodide with antithyroid drugs.
- Corticosteroids.
- Cold sponging with antipyretics to relieve the fever.
- I/V fluids (normal saline) will be given for dehydration.
- Broad spectrum antibiotics (gram – ve and anaerobic cover) will be given until the result of cultures.

Q.No.22. A 40 years old hypertensive, alcoholic male, on thiazide diuretic after taking two pints of wine in night, developed severe acute upper abdominal pain with vomiting .

On e/m, his pulse rate is 110/min, with feeble peripheral pulses, B.P. 85/50mmHg with cold extremities. His abdomen is distended with tender upper half. No viscera were palpable.

a) **What is the diagnosis? .Give three differentials.**
b) **What investigation would you do?**
c) **Give management and prognostic factors.**

a) He is suffering from acute pancreatitis. Risk factors for acute pancreatitis are alcohol and thiazide diuretics in this patient.

The differential diagnosis include:-

1. Dissection of abdominal aortic aneurysm. Severe abdominal pain, hypotension, feeble peripheral pulses may suggest dissecting aortic aneurysm.
2. Mesenteric ischemia, again presents with abdominal pain, tachycardia and hypotension.
3. Gut perforation is suggested by abdominal pain, distended tender abdomen, vomiting, tachycardia and hypotension.

b) These include.

- Serum amylase , lipase.

Amylase three times the upper limit of normal is extremely sensitive. Lipase is elevated for longer time then amylase.

- Full blood count and CRP, to determine, the extent of inflammation, monitor leucocytosis and haematocrit.
- Urea and electrolytes, if deranged may indicate severity of pancreatitis.
- Blood glucose may elevate due to loss of exocrine function of pancreas.
- Plasma calcium is low.
- AST is also done to assess severity of pancreatitis.
- Arterial blood gases may show low PO2.
- Erect abdominal x-ray, to rule out gut perforation.
- Ultrasound abdomen may show aortic aneurysm. This will also help to rule out gall stones, another important cause of pancreatitis.
- Electrocardiogram to rule out underlying cardiac ischemia or arrhythmia responsible for thromboembolic phenomena.

c)

- He'll be admitted in intensive care unit.
- Nasogastric intubation followed by suction will be done to prevent abdominal distension.
- Oxygen inhalation will be started.
- Broad spectrum antibiotics to reduce infective complications.
- Pain relief with pethidine or tramadol will be done.
- Patient will be kept NPO.
- Adequate fluid balance will be maintained by giving appropriate fluids and urine output will be monitored.

Prognostic factors are described according to Ranson's criteria and these are:-

Age	>55years
WBC	$>15 \times 10^9$/L
Blood glucose	>10 mmol/L
Serum urea	>16 mmol/L
AST	>200 U/L
LDH	>600 U/L
S/calcium	<2.0 mmol/L
S/albumin	<30g/L
PaO_2	<8 kpa.

Presence of three or more factors indicates severe disease. Another criteria APACHE score includes physiological markers (temperature, blood pressure, R/R, pulse, Glasgow coma scale) in addition to lab values.

Q.No.23 A 40 years old male is admitted with altered consciousness, cough, fever of 4 days duration. Clinical e/m reveals. Temperature 101°F, pulse 100/min, B.P 110/60 mmHg, stupurous, no neck rigidity, no lateralizing sign and planters b/l down going. The

fundi are normal. Chest e/m shows signs of consolidation on left side. Investigations show TLC 14.5 × 10^9/L, 80% neutrophils, serum urea 3.5 mmol/L, serum sodium 120mmol/L and potassium 3.0mmol/L.

a) **What is the most probable diagnosis?**
b) **Mention the investigation to confirm the diagnosis.**
c) **List three principles of management.**

a) The most likely diagnosis is left sided lobar pneumonia due to Legionella pneumophilla and he has developed syndrome of inappropriate anti-diuretic hormone (SIADH) leading to hyponatremia, a common finding in Legionella pneumonia.

b) For confirmation of the diagnosis:-
- Serological tests for Legionella are required. These include:-
- Urinary assay for Legionella antigen.
- Direct immunoflorescence of sputum.
- Culture requires selective media
- Beside this, to confirm consolidation, chest x-ray will be carried out. To monitor hypoxemia, ABG`s will be advised.
- For SIADH urine osmolality (high) and plasma osmolality (low) will be done.

c) He'll be admitted in medical ward.
1. He'll be given hypertonic saline with diuretic to correct hyponatremia. Rate of correction will not exceed 1mEq /L/hr.
2. Empirical antibiotics (cefuroxime + marcrolide) will be started, while blood and sputum cultures will be sent.After confirmation of Legionella, macrolide with or without rifampicin will be continued for 2 weeks.
3. He'll be given oxygen inhalation according to ABG`s. Antipyretics, appropriate fluid and caloric intake will be maintained.

Q.No.24. A young lady with postpartum fever for one week presented in emergency department with h/o bleeding from various sites and oliguria. On e/m, she is anaemic with cutaneous bleeding and mildly jaundiced. There is no hepatosplenomegaly. Investigation revealed Hb: 8.0 gm/dl, TLC 6000/mm^3, T/ bilirubin 3mg/dl with direct bilirubin 1 mg%; ALT 100 IU, LDH 1230 IU, serological test for B, C and E are negative. Her blood urea is 200mg%.

a) **What is the most likely diagnosis?**
b) **List the lab abnormalities in this condition.**
c) **What are treatment options?**

a) The most likely diagnosis is haemolytic uraemic syndrome. This is indicated by postpartum fever, oliguria, bleeding from various sites, raised indirect bilirubin due to haemolysis, raised blood urea and LDH levels.
It causes microangiopathic, hemolytic anemia, uremia and thrombocytopenia.

b) **Lab abnormalities:-**

- Platelet count; will be low.
- Fragmented RBC's will be seen on peripheral blood smear.
- Low haemoglobin.
- Raised blood urea and creatinine.
- Raised LDH.
- Indirect hyperbilirubinaemia.
- Urinary urobilinogen in the absence of bilirubinuira.

c) Plasmaphoresis, 60 -80 ml/kg will be done.

Q.No.25 An elderly lady presents with history of dry cough and increasing dyspnea for the past few years. Since last few months, she has noticed dryness of eyes and mouth. The patient complains of occasional fever and arthralgias. Chest x-ray brought by the patient shows b/l hilar masses and fibrosis in right mid zones.

a) **What is the most likely diagnosis?**
b) **What tests are needed to confirm the diagnosis?**
c) **What is the treatment?**

a) The most likely diagnosis is Sarcoidosis. B/L hilar masses, probably lymph nodes with history of arthralgias, keratoconjunctivits sicca and shortness of breath helps in recognizing the disease.

b) Following tests will be carried out:-

- Bronchoscopy with bronchoalveolar lavage. Lavage will show increased CD4 cells as compared to CD8 cells, reversal of normal pattern.
- CT chest with CT guided lymph node biopsy will be done. Lymph node biopsy will show characteristics non-caseating granulomas.
- Serum calcium levels will be raised.
- Serum ACE levels will be raised (can be used to monitor the disease progress).
- Montaux test will be negative.
- Pulmonary function tests will indicate a restrictive pattern.

c) Management will include:

- Steroids
- Artificial tears
- NSAIDS.

Q.No.26. An 13 year old boy presents to medical OPD with 3 months history of headache and vomiting. On examination he has b/l papilledema. His past history is unremarkable except for fever for one week prior to these complaints.

a) **What is the differential diagnosis?**
b) **Name 5 relevant investigations with justifications.**

a) The differential diagnosis include:-

1. Brain Abscess.
2. Tuberculoma.
3. Primary brain tumor.
4. Tuberculous meningitis.
5. Cortical venous sinus thrombosis.

All these disorders can cause fever, headache, vomiting and b/l papilledema.

b) Following investigations will be done:-

1. Complete blood count with ESR. In case of brain abscess or cortical venous thrombosis, raised WBC count, raised neutrophils will be seen. ESR will be increased with tuberculosis or primary brain tumor.
2. CT brain with contrast / MRI brain will show hypodense ring enhancing lesions (CT brain with contrast). This may also show surrounding brain edema or ventricular shift.
3. Blood cultures, will be sent. These will help in determining the causative organism in case of brain abscess.
4. Chest x-ray may show hilar adenopathy, upper lobe consolidation / fibrosis, which may be an indication of tuberculosis.
5. CSF examination will be done. Lumbar puncture will be done with care, as he already has papilledema. CSF analysis may show raised proteins with low or normal glucose in case of tuberculous meningitis, tuberculoma and brain abscess. The WBC count will be raised in all the situations, with predominant lymphocytes.

Q.No.27. A 25 years old young man presented with three months history of recurrent high grade fever associated with chills. Occasionally his temperature becomes subnormal. There is history of preceding sore throat. He has lost 10% of his body weight. There is salmon pink rash on his chest along with generalized lymphadenopathy. His liver and spleen are palpable. His both wrists and ankles are swollen. ANA, anti-ds DNA, rheumatoid factor are negative. His tuberculin test was negative, moreover he did not respond to therapeutic trial of 1 month of anti-tuberculosis treatment. ESR 80 mm at Ist hour, WBC count is 45,000/ul, blood cultures are repeatedly negative and trans esophageal echocardiography is normal.

a) What is the most likely diagnosis?
b) What are the three possible differential diagnosis?
c) How will you treat him for the most likely cause?

a) The most likely diagnosis is still's disease / juvenile rheumatoid arthritis.

Key features leading to this diagnosis are:-

1) Preceding history of sore throat.
2) High grade fever with chill.
3) Weight loss.
4) Salmon pink rash.

5)Generalized lymphadenopathy with hepatosplenomegaly.
6)Arthritis.
7)-ve ANA, RA, and anti-ds DNA.
8)Raised ESR, negative tuberculin test with no response to ATT.
9)Raised WBC count with –ve blood cultures and normal trans-esophageal echocardiogram.

b)

1. Lymphoma.
2. Infectious mononucleosis.
3. Chronic brucellosis.

c)

- The most likely diagnosis is still's disease, as already mentioned. So, he will be started on prednisolone 1 mg/kg/day.
- He will be given NSAIDS for arthritis and antipyretics for fever. Fluids and adequate caloric intake will be maintained.

Q.No.28. A 70 years old male admitted in CCU with anterior wall MI was treated with streptokinase. Three days later, he developed severe breathlessness. On examination pulse 120/min, regular, reveals systolic murmur (3/6). There are bilateral crepitations.

a) What is the likely diagnosis?
b) List 5 investigations helpful in the diagnosis, with reasons.
c) What is the management?

a) He has developed heart failure due to mitral regurgitation or ventricular septal defect, secondary to extensive anterior wall myocardial infarction. Sudden onset of breathlessness, with hypotension, raised JVP, pulmonary edema and systolic murmur suggests the diagnosis.

b) **Investigation:-**

1. Electrocardiogram will show Q waves with T wave inversion in anterior leads, indicating previous anterior wall infarction. Re-infarction or ischemia might also be seen.
2. Tranthoracic echocardiogram with Doppler, to confirm mitral regurgitation or ventricular septal defect. Akinetic anterior wall will also be seen.
3. Chest x-ray will help to confirm pulmonary oedema secondary to the complication developed. It may also show cardiomegaly.
4. Cardiac enzymes, may show raised Trop-T, AST and LDH, though CPK-MB might have settled.
5. If there is still doubt, regarding the diagnosis, cardiac catheterization will be carried out which may show step-up in oxygen saturation in right ventricle in case of VSD or large v waves in left atrial pressure in case of mitral regurgitation.

c) Management:-

1. He will be stabilized haemodynamically by using intra-aortic balloon counter pulsation (IABC). Another option is nitroprousside, but as he already has hypotension, so IABC will be performed. Surgical correction of mechanical defect is mandatory. If done in unstable patient mortality rate is high. If done after stabilization, low risks have been seen.

Q.No.29. A 42 years old lady on repeated haemodialysis for chronic renal failure has developed fever for the last 2 weeks. She also c/o numbness of extremities. On examination she is pale, febrile, have finger clubbing. There is a systolic murmur, grade 3/6 in mitral area. Spleen is palpable by 3 fingers below the costal margin.

a)Give differential diagnosis.

b)What other signs would you like to elicit to confirm your diagnosis clinically?

a) Diagnosis:-

1. Infective endocarditis, the most likely diagnosis, as she has fever, clubbing, systolic murmur at mitral area and splenomegaly.
2. Acute on chronic liver disease, as she is on haemodialysis with pallor, clubbing and splenomegaly. Haemodialysis predispose to viral hepatitis B and C.
3. Disseminated tuberculosis, as she is immunocompromised. Fever, pallor and splenomegaly can be explained by disseminated tuberculosis.
4. Lung abscess, again as she is immunocompromised so she is predisposed to unusual infection. Fever, clubbing may point toward underlying pulmonary pathology. Lung abscess and haemodialysis both lead to amyloidosis, which can explain splenomegaly.
5. Malaria; fever with splenomegaly can also be explained by malaria.

b)Following signs will be looked for:-

- Pulse, may reveal tachycardia due to fever.
- Splinter haemorrhages in nails for infective endocarditis (I.E).
- Jane way lesions and oslers nodes, vasculitic lesion seen in I.E.
- Jaundice, to rule out acute hepatitis.
- Localization of apex beat for cardiomegaly, with heaving character which may suggest volume overload due to mitral / aortic regurgitation.
- Parasternal heave for right ventricular hypertrophy secondary to pulmonary hypertension caused by mitral valve disease.
- Thrill due to underlying valvular disorders.
- Character of heart sounds and presence of S3.
- Effect of respiration on systolic murmur at mitral area. Murmur due to mitral valve abnormalities exaggerates during expiration.
- Tender hepatomegaly, which may be secondary to congestive heart failure or hepatitis.
- B/L end-inspiratory basal crepitations, as patients with heart failure may develop pulmonary edema.

- Pedal edema, due to heart failure.
- Fundoscopy may reveal Roth's spots, characteristics of I.E.
- Any focal neurological deficit secondary to septic embolic phenomena.

Q.No.30. A 17 years old girl is admitted with increasing fatigue and pallor for 3 months. There is no history of chronic blood loss. She has not taken any medicines. On examination, she is markedly pale, with hepatosplenomegaly, her investigations show; Hb 8.0 gm/dl, normal MCV and normal TLC, DLC and platelet count.

a)What are possible causes of her anaemia? Name five conditions.
b)List five investigations with justifications.

a) **The likely causes of anemia are:-**

1. Lymphoreticular disorder e.g. lymphoma.
2. Aleukemic leukemia.
3. Haemolytic anaemia, which could be either due to intrinsic defect (hereditary spherocytosis) or extrinsic defect (autoimmune haemolytic anemia).
4. Chronic liver disease.
5. Disseminated tuberculosis

b) **Investigations:-**

1. Peripheral blood smear, may show blast cells (Leukemia), leucoerythroblastic picture (bone marrow infiltration due to lymphoma, leukemia), spherocytes, elliptocytes, fragmented RBC's.
2. Chest x-ray, may show hilar / mediastinal adenopathy due to lymphoma or tuberculosis. If these are seen, then transbronchial or transthoracic lymph node biopsy will be done to confirm diagnosis. Chest x-ray may also show upper lobe consolidation, cavitations or fibrosis due to tuberculosis.
3. Bone marrow aspiration and biopsy will be done to confirm the causes of anaemia. It will show the exact cause of her pallor.
4. Reticulocyte count, will be elevated in case of haemolytic anaemia, while conditions causing bone marrow suppression leads to low reticulocyte count.
5. Ultrasound abdomen to look at the texture, size of liver, spleen and portal vein. It may show intra-abdominal lymph nodes, ileocaecal mass due to tuberculosis or ascites, which may be due to tuberculosis, liver disease or lymphoma.

Q.No.31. A 69 years old man presented with one day history of severe para-umbilical pain with vomiting followed in 12 hours by haematochezia and restlessness. He is known to have IHD and hypothyroidism and taking regular treatment. On examination he appears exhausted. B.P. 90/60 mmHg, abdomen is mildly distended with tenderness in paraumbillical area. Bowel sounds are feeble. Rest of the examination is unremarkable. Lab investigations; Hb 13.8 g/dl, Hct 36%, WBC 16,000/cm^3. with polys 82%. Serum

amylase is 136U/L. Blood glucose and LFT's are normal. Plain x-ray abdomen shows some fluid levels. Ultrasound abdomen is unremarkable.

a) What is the most likely diagnosis?
b) Name four other conditions you would like to consider.
c) List four further investigations.
d) Give principles of management.

a) The most likely diagnosis is ischemic colitis. He is an elderly male with past history of ischemic heart disease. So, he might have advanced atherosclerotic disease throughout his vessels. On presentation, history of abdominal pain, haematochezia, hypotension, weak bowel sounds with normal amylase and U/S abdomen points towards the diagnosis of ischemic colitis.

b) **Other conditions:-**
1. Acute diverticulitis.
2. Infective colitis.
3. Mesenteric ischemia.
4. Hemorrhage from peptic ulcer. If there is massive bleed, then it can present with severe abdominal pain and haematochezia due to rapid G.I transit.

c) **Investigations:-**
1. Electrocardiogram, ECG, to determine any on going myocardial ischemia, infarct or arrhythmia, which may have precipitated the current event.
2. Sigmoidoscopy followed by colonoscopy will be done within 6-24 hours of presentation; after resuscitation and adequate colonic lavage. This may help to identify diverticula, infective colitis or any vascular ectasia responsible for haematochezia.
3. Nuclear bleeding scan with labeled RBC's will be done, if above fails to demonstrate the exact aetiology. This may help to localize the site of bleed in 78% of patients.
4. Angiography will be done. This will help to localize the site of bleed and angiographic embolization or surgery can be carried out effectively.

d) **Management:-**
1. He will be resuscitated by maintaining an I.V. line. Normal saline or blood transfusion will be given according to his blood pressure and haematocrit levels.
2. Colonoscopy done may serve a therapeutic role as well. Vessels will be treated with injection of epinephrine, cautery or application of metallic clips.
3. In case the bleeding does not settle down spontaneously, selective intra-arterial embolization will be done. This helps to control bleeding in 90% of patients and is preferred to surgery in patients with IHD, who are poor operative candidates.
4. If still the bleeding continues, then limited resection of bleeding segment after pre-operative localization will be done.
5. Total colectomy will be done in case of massive haematochezia or failure of localization of site of bleed.

Q.No.32. A 75 years old man is admitted with CVA. He has global aphasia and right sided dense hemiplegia. During 2nd week of admission in hospital he starts passing large amount of urine (>6L/Day).His RBS is 140mg/dl, urine D/R shows specific gravity 1.005, albumin –ve, RBC, WBC nil and no cast.

a) **What is the diagnosis?**
b) **How would you confirm the diagnosis?**
c) **Name three drugs which can cause similar condition.**
d) **Out line the treatment.**

a) The diagnosis is cranial diabetes insipidus. His BSL is normal. He has suffered from a recent stroke. Polyuria with low specific gravity of urine points towards the diagnosis.

b) Plasma and urine osmolality will be checked. Plasma osmolality will be high or high normal, while urine osmolality will be low.

Water deprivation test can be carried out to confirm the diagnosis. In case of D.I,serum osmolaltiy will rise above normal without adequate concentration of urine osmolality.

Then desmopressin will be given (2ug/M); will result in adequate concentration of urine in case of cranial D.I.

c) Drugs which cause nephrogenic diabetes inspidus i.e. renal tubular insensitivity to ADH:-

Demeclocycline. Glibenclamide.
Lithium. ketoconazole.
Methicillin.

d) **Treatment:-**

Desmopressin acetate will be used for treating the patient. It can be given intranasally, I/V, I/M, S/C or even orally.
Desmopressin in combination with hydrochlorthiazide is also effective.

Q.No.33. A 20 year old labourer was brought in examination department with few hours history of nausea, vomiting, and abdominal pain and decreased vision after consumption of a drink. On examination he was drowsy and breathing heavily. Pupils were dilated and sluggishly reacting to light. Fundoscopy revealed hyperaemia of optic discs and evidence of retinal edema. Rest of the examination was normal. Subsequently his conscious level deteriorated and he developed generalized tonic,clonic fits. Lab investigations: blood counts, sugar and urea was normal. ABG's, ph=7.29, PaO_2=89mmHg $PaCO_2$=30mmHg, HCO_3 8meq/L.

a) **What is your diagnosis?**
b) **How would you manage this case?**

a) The patient most likely has Methanol poisoning. History of drink, followed by drowsiness, decreased vision, poorly reactive dilated pupils, metabolic acidosis with normal sugar and urea suggests the diagnosis.

b) Methanol is metabolized to formate and formaldehyde, which cause accumulation of hydrogen ions.

So inhibition of methanol metabolism is important and is carried out by the administration of ethanol or fomepizole. These inhibit alcohol dehyderogenase. Ethanol is given as I.V. infusion until no methanol is detected in the blood.

To remove methanol and formate, hemodialysis will be carried out.

To prevent ocular toxicity, 30 mg of folinic acid will be given. This will accelerate formate metabolism.

Supportive measure to combat metabolic acidosis, fits, hypocalcemia and shock will be carried out.

Q.NO.34. A 45 years old diabetic male presented with history of nasal stuffiness and blockade for 1 week followed by right periorbital congestion and diminished vision. One day later, he developed proptosis and loss of vision in right eye. On examination he is dehydrated, pale and drowsy, temperature is 104°F. His right eye is proptosed with opthalmoplegia. There was blackish plague on the soft palate, neck rigidity was –ve.

a) What is the most likely diagnosis?
b) How will you investigate?
c) Outline the management.

a) The most likely diagnosis is Rhinocerebral mucormycosis. The underlying diabetes mellitus is the pre-disposing factor. Right sided proptosed eye with ophthalmoplegia and black plague on the soft palate is characteristic.

b) Following investigation will be done:-

1. Complete blood counts, may reveal anaemia with leucocytosis and thrombocytopenia due to diabetic nephropathy and septicemia respectively.
2. Blood sugar level, may have hyperglycemia.
3. Urine C/E to look for proteinuria and ketone bodies. Diabetic ketoacidosis is also a predisposing condition.
4. Blood culture will be sent, as he is hyperpyrexial.
5. Renal profile; serum urea and creatinine.
6. Serum electrolytes (sodium and potassium), as associated renal failure can cause hyperkalemia.
7. CT/MRI brain and orbit to see extension into the brain and rule out cavernous sinus thrombosis.
8. Nasal or sinus biopsy may demonstrate broad, non-septate fungal hyphae.

c) Management:

Management will be carried out along with the ENT specialist.

1. He will need judicious debridement of the involved area.
2. He will be started on amphoteracin B (0.7mg/kg/dayI.V.).
3. Effective blood sugar control will be maintained with insulin injections.
4. I.V. fluids (normal saline) will be given to hydrate him and maintain adequate urine output., cold sponging and antipyretics will be given for fever.
5. Good nutritional support, care of skin, bladder and bowel will be done.

Q.No.35. A 60 years old retired gentleman, smoker is brought with history of somnolence, cough and recent seizure. There is history of snoring heavily. On examination pulse 110/min, B.P. 160/80. He is obese with tinge of cyanosis and a bloated appearance, he is drowsy but arousable. Chest examination reveals scattered rhonchi. Lab investigations: - Hb 18gm%, TLC 7000/cmm, ESR 10mm/Ist hour. O2 saturation 88%, ECG shows tall P waves in lead II.

a) What is the diagnosis?
b) State 4 tests which will help to confirm the diagnosis.
c) List 5 steps in the management of this case.

a) He has obstructive sleep apnea with secondary polycythemia and cor-pulmonale. He is obese and a smoker. Both are risk factors for obstructive sleep apnea (OSA). History of somnolence, cough, seizure and snoring are typical of OSA.

b) **Investigations:-**

1. Arterial blood gases will show hypoxia, hypercapnia and respiratory acidosis.
2. Chest x-ray to look at the lung fields, their extent of inflation and cardiac size.
3. Polysomnography may reveal apnoeic episodes lasting as long as 60 seconds.
4. Transthoracic echocardiogram may show hypertrophied right ventricle with elevated pressure in pulmonary artery.

c) **Management:-**

1. Supplemental oxygen (1-2 L/min) will help to reduce the severity of hypoxia.
2. Nasal continuous positive airway pressure (CPAP) is usually curative.
3. Strict avoidance of smoking.
4. Weight reduction.
5. Inhaled anticholinergics and β-2 agonists. (Initially nebulisation followed by inhalation).

Q.No.36. A 40 years old male presented with dyspnea, cough and haemoptysis of 10 days duration. He has never smoked. On examination, temperature 37°C, pulse 110/min, B.P. 170/100 mmHg, pitting ankle adema is +ve, JVP is not raised. On auscultation of chest, there are b/l crepitations, CVS examination is unremarkable.
Lab investigations: Hb 10.0g /dl WCC 16×10^9/L
ESR 85 mm/ 1st hour, microcytic hypochromic picture, urea=230mg/dl, creatinine 8.5mg/dl, urine R/E is albumin ++, numerous RBC, granular cast. 3-4. X-ray chest: wide

spread interstitial shadowing of both lung fields . ABG: PaO_2 58 mmHg, $PaCO_2$ 20mmHg.

a) **What is your differential diagnosis?**
b) **How will you further investigate this case?**
c) **How would you manage this patient?**

a) He has presented with renal-pulmonary syndrome. The probable causes could be:-

1. Good-Pasture syndrome.
2. Wegener's granulamatosis.
3. Microscopic polyangitis.
4. Atypical pneumonia due to Mycoplasma or legionella, causing renal involvement too, in the form of acute nephritic syndrome.

b) **Investigations:-**

1. Anti-GBM antibodies will be present in Good Pasture syndrome.
2. ANCA antibodies will be done. p-ANCA is present in case of microscopic polyangitis while c-ANCA is raised in Wegener's granulomatosis.
3. Sputum C/E.
4. Serological tests for Mycoplasma IgM and Legionella antibodies.
5. Urinary Legionella antigen assays will be done.
6. Renal biopsy may demonstrate glomerular sclerosis with or without crescent formation and linear deposition of IgG and C3 along the basement membrane in case of Good-Pasture syndrome. Wegener's and microscopic polyangitis are small vessel vasculitides, with granuloma formation in Wegener's granulomatosis.

c) **Management:-**

1. He will be managed in high dependency unit.
2. O_2 inhalation (4-5 L/min) will be started.
3. Plasma exchange will be carried out as Good-Pasture / anti-GBM glomerulonephritis is the most likely cause. This modality of treatment has better outcome in ANCA positive vasculitides as well.
4. Steroids will be given to suppress inflammation.
5. Immunosuppressant e.g. cyclophosphamide will be started to inhibit further antibody synthesis.
6. As he already has advanced acute renal failure, so he will be started on haemodialysis as well to remove uraemic toxins. This can be scheduled according to serial estimation of blood urea and creatinine.
7. Monitoring of ABG's, serum potassium, urea, creatinine and blood pressure will be carried out.

Q.No.37. An 18 years old male patient presents with abdominal pain and weakness. On examination he is anaemic, spleen is five fingers enlarged and there is right hypochondrium tenderness. Lab investigations: - Hb 9.0g/dl, MCV 70 fl, MCHC 34g/dl,

hyperchromic RBC with reticulocyte cont 12%. Ultrasound abdomen reveals multiple gall stones.

a) **What is the diagnosis?**
b) **What lab investigations would you carry out to confirm the diagnosis?**
c) **How would you treat this patient?**

a) The diagnosis is hereditary spherocytosis with cholecystitis due to pigment gall stones. The presence of microcytic hyperchromic anaemia with splenomegaly and elevated reticulocyte count suggest the diagnosis.

b) Following lab investigations will be carried out:-
1. Peripheral blood smear, will show typical spherocytes.
2. RBC osmotic fragility test, will show increase lysis of RBC on placing them in hypotonic solution. This is typical of spherocytes,

c) He will be given analgesia for abdominal pain:
- He will be kept NPO.
- I/V antibiotics for acute cholecystitis will be given (third generation cephalosporin).
- When he will be stable (pain-free), cholecytectomy and splenectomy will be planned. Cholecytectomy is required as there are multiple gall stones and there is a chance of recurrence.

Splenectomy will remove the site, where RBC's are being destroyed. So this will improve the anemia & effects of hemolysis.
- He will be given oral folic acid 1mg/day in the long run.

Q.No.38 A 22 years old female presented with seizures of tonic-clonic type followed by loss of consciousness about 12 hours back. His attendant gives history of polyarthralgias and intermittent fever for the last 6 months. She also had weight loss and photosensitivity for same duration. She was diagnosed as hypothyroid 2 years back and since then she is taking tab. Thyroxine 2 tab /day.

a) **What differential diagnoses you will consider?**
b) **Give at least 4 investigations.**
c) **Outline the management.**

a) These include:-
1. Systemic lupus erythematosus, as she has history of polyarthralgias, photosensitivity, weight loss and intermittent fever.
2. Polyarteritis nodosa, vasculitic disorder can also present with fever, weight loss, polyarthralgias and fits.
3. Tuberculoma; patient can present with fever, weight loss and fits.

4. Myxedema coma, patient is a known hypothyroid and is on thyroxine. Intercurrent infection can precipitate myxedema coma. Fits can be explained by hypoglycemia or hyponatremia, features of myxedema coma.

b) Investigations:-

1. ANA; to confirm SLE.
2. Serum biochemistry; blood sugar level, sodium level and serum creatinine to rule out underlying metabolic cause.
3. CT brain with contrast, to look for any space occupying lesion of the brain, particularly tuberculoma (ring enhancing lesion).
4. TSH assays, will be grossly elevated in case of myxedema coma.

c) Management:-

- I.V line will be maintained.
- She will be given I.V diazepam followed by phenytoin intravenously, if the fits persist or recurs.
- Steroids will be started intravenously, methylprednisolone as pulse therapy followed by prednisolone orally (1mg/ kg).
- Samples for fT_4 and TSH will be sent and then I/V levothyroxine will be given.
- Nasogastric and Foley catheter will be passed.
- I/V fluids (Normal saline / Dextrose saline) will be given to fulfill her fluid, electrolyte needs as well as treat underlying hyponatremia / hypoglycemia.
- Further treatment will be guided by the diagnosis as confirmed by investigations. Steroids will be continued orally in case of SLE. Anti tuberculosis therapy with neurosurgical intervention is required in case of tuberculoma.

Q.No.39 A taxi driver of 32-years age c/o fever for the last 6 weeks. He consulted the doctor due to second episode of painless hematuria. He is a smoker and has no relevant past medical history. On examination, temperature is 38 C, B.P. is 120/80 mmHg.

Investigation: - blood urea, serum Na^+, K^+, Ca^+ and phosphate all normal.

Urine examination; blood trace, protein trace. Mid – stream urine; 10 RBC / HPF, 02 leucocytes / HPF and no casts.

Plain x-ray abdomen: calcification in left renal area. I.V.U; normal apart from the calcification in the lower pole of Left kidney.

a) Give three differential diagnoses.

b) What 5 investigations would you carry out?

a)

1. Renal tuberculosis; history of fever for 6 weeks, painless haematuria and local renal calcification explains it.
2. Calcification in renal carcinoma.
3. Calcification in infected renal cyst.

b) Investigations:-

1. Complete blood count with ESR, this might show anemia of chronic disease or polycythemia due to hypernephroma. ESR will be elevated in case of tubereulosis as well as malignancy.
2. Ultrasound / CT abdomen to rule out any cystic / solid growth in the kidneys.
3. Chest x-ray may give evidence of pulmonary tuberculosis as well; or there may be pulmonary metastases.
4. In case of suspected renal tuberculosis or carcinoma (after CT/USG abdomen), renal biopsy or FNAC of the involved area will be done and histopathology will be carried out. This will help to confirm the lesion.
5. Early morning urine samples will be taken and subjected to ZN staining for AFB and culture for mycobacterium tuberculosis.

Q.No.40 A 55 years old man working with Construction Company who had smoker cough for many years, has been presented with shortness of breath recently. He smokes 14-20 cigarettes /day and keeps pigeon for company. On examination marked finger clubbing is present. Cyanosis is absent. b/l basal crepitations are present. No cardiac lesion is detected. X-ray chest shows diffuse reticular pattern at lung basis. Treatment with corticosteroids did not improve his symptoms.

Lung Function Test	Result	Predicated Value
Vital Capacity	2.5 Liters	3.8 - 4.8 Liters
FEV1	1.5 Liters	2.5 - 3.5 Liters
FEV1: VC	68%	75%
TLC	4.8 Liters	5.5 - 7.3 Liters
CO diffusion capacity	7.8 mlco/min/mmHg	27 mlco/min mmHg

Arterial blood gasses

$PaCO_2$ 5.2 KP_2 (39mmHg).

PaO_2 9.8 KP_2 (74 mmHg).

Describe the pulmonary functions abnormality in this patent.

Give four possible diagnoses.

What would happen to PaO_2 and Pa CO_2 on exertion and why?

What would happen to PaO_2 and Pa CO_2 on inhaling 100% oxygen and why?

a) He has mixed obstructive and restrictive pulmonary disorder.

The FEV1: VC capacity is 68% indicating more decrease in FEV1. The ratio if less then 75% indicates obstructive aetiology.

On the other hand, the total lung capacity (TLC) is increased in case of obstructive lung defects. In this, patient, it is decreased showing one of the features of restrictive lung defect. CO diffusion capacity is also markedly decreased, a feature seen in both disorders, more in interstitial lung disease and emphysema.

b) These Include:-

1. Chronic obstructive airway disease, as he is a smoker and has chronic bronchitis too. His PFT's also include obstructive cause.
2. Interstitial lung disease due to pneumoconiosis. He is a worker in Construction Company. Exposure to asbestos and silica is likely. Presence of clubbing and bilateral basal crepitations also suggest this.
3. Extrinsic allergic alveolitis; is considered as a diagnosis as he has pigeons. Exposure to birds can cause bird fancier's lung this can also show features of interstitial lung disease.
4. Bronchogenic carcinoma; presence of clubbing in a smoker, who is also a worker in construction company, is doubtful and needs full investigations to rule out underlying malignancy as well.

c) On exertion, he will require more oxygen while his lungs are compromised. So his hypoxia will worsen, PO_2 will fall further. He will hyperventilate so $PaCO_2$ will be decreased too, and he will develop respiratory alkalosis.

d) On breathing 100% oxygen, hypoxia will improve, $PaCO_2$ will rise and hypoxic drive to the respiratory centre will be eliminated, so patient will hypoventilate. This will cause raised $PaCO_2$. If this continues, hypercapnia will keep on worsening and respiratory acidosis may develop.

Q.No.41 A 62 years old man has presented with progressive deterioration of vision in the left eye for the past 3 months. On fundoscopic examination, left disc revealed pallor and reduced vascularity but right fundus showed papilledema and dilated veins.

a) What is the clinical diagnosis?
b) Give four causes.
c) What three relevant investigation you will carry out?

a) The clinical diagnosis is left optic atrophy with right papilledema.

b) Causes:-

1. Optic atrophy may follow long standing papilledema which may be due to
   a. Raised intracranial pressure.
   b. Raised blood pressure.
   c. Optic neuritis (multiple sclerosis).
   d. Central retinal vein thrombosis.
2. Multiple sclerosis causes optic atrophy.
3. Metabolic cause e.g. B12 deficiency.
4. Ischemic optic neuropathy e.g. giant cell arteritis, can cause papilledema and optic atrophy as well.

c) **Investigation:-**

1. CT/MRI brain to see for any space occupying leion, ventricular dilatation or any periventicular plaque so multiple sclerosis and raised intracranial pressure will be easily detected.
2. Complete blood count, high haemoglobin and PCV may suggest polycythemia which can cause thrombus formation and hence nerve infarction this can also lead to central retinal vein thrombosis.
3. Anaemia with macrocytosis may suggest B_{12} deficiency, a recognized cause of optic atrophy.

ESR, markedly raised ESR may indicate under lying giant cell arteritis in this elderly gentleman.

Q.No.42 A 40 years old patient has history of epigastric pain and 5-6 loose stools daily for the last 5 months upper G.1 endoscopy reveals one ulcer at the gastric antrum and two ulcers in the second part of duodenum.

a) **What is the most likely diagnosis?**
b) **List the investigations you will carry out?**
c) **How will you treat this patient?**

a) The most likely diagnosis is Zollinger Ellison syndrome.
History of multiple gastric and duodenal ulcers with loose stool suggests the diagnosis. These patients have hypergastrinemia and hence elevated basal acid out put. The increased acid out put leads to wide spread peptic ulceration. Gastric acid also causes inactivation of pancreatic enzymes resulting in diarrhea.

b) Following investigations will be done, _

- Fasting gastrin levels, will be elevated.
- Measurement of gastric pH, pH>3.0 exclude Z.E syndrome.
- Secretin stimulation tests if gastrin levels are 1000pg/ml.
- Somatostatin receptor scintigraphy (SRS) can be used to detect gastrinomas.
- CT/MRI abdomen to look for hepatic metastases.
- Stool C/E as well as staining for fat globules with Sudan stain.

c) He will be started on high dose proton pump inhibitor (omeprazole, 40-120 mg/day). In the absence of hepatic metastases, laparotomy for resection of the tumor will be carried out.

Q.No.43 A 30years old man is brought from northern area to hospital as an emergency case with five day history of malena and generalized abdominal pain. Upper G.I endoscopy revealed oozing of blood in the lesser curvature. There were no ulcer growth or varices. Next day bleeding from gums was noted. There was no lymphadenopathy. Liver just palpable and tip of spleen was palpable. Throat was mildly congested, respiratory and central nervous system e/m was normal.

a) **What is the most probable diagnosis?**
b) **List three laboratory investigations.**
c) **How will you manage?**

a) The diagnosis is acute leukemia, most likely acute myeloid leukemia. He has evidence of mucosal and gum bleed. There is mild hepatosplenomegaly with no lymphadenopathy. Rest of the systems are normal. Duration of history is short. So most probable diagnosis is acute myeloid leukemia.

b) These are:-

1) Complete blood count with peripheral smear may show pancytopenia or anaemia thrombocytopenia and elevated WBC count. Peripheral smear may reveal circulating blast cells.
2) Bone marrow examination; will show hypercellular bone marrow dominated by blast cells.
3) Cytogenetic analysis of blast cells to confirm monocytic, myeloid or lymphoid origin.

c)

- Consultation from oncologist will be taken and chemotherapy will be planned.
- I/V fluids and allopurinol will be started to counteract tumor lysis syndrome, secondary to chemotherapy.
- Patient with AML are treated with anthracycline plus cytarabine. Cytogenetic analysis will further help in management.
- Patients with acute promyelocytic leukemia are given all Trans- retinoic acid with dramatic results.
- Depending upon the cell count, blood transfusion will be done.
- After remission, post-remission therapy will be advised with curative intent. This includes chemotherapy, autologous / allogenic bone marrow transplant.

Q.No.44. A 27 years old engineer c/o low backache especially at night and for one hour after waking for the last 1 year. There is partial relief with aspirin tablet. He also has recurrent pain in left heel. 2 years ago he had been seen by an eye specialist for acutely painful red right eye which responded to steroid eye drops. There is no history of rash, urinary or bowel complaints. His father had psoriasis and maternal aunt was suffering from ulcerative colitis. On examination lumber spine was stiff in all movements especially lateral flexion and extension. Sacro-iliac joints were tender to deep pressure. Both eyes were normal. CBC, ESR, urea, electrolytes, sugar, alkaline Phosphatase, LFT's, calcium, phosphate and urine electrolytes are normal.

a) **Give three differential diagnoses?**
b) **What investigations would you carry out? Please give reasons.**
c) **How will you manage?**

a)

1. **Ankylosing Spondylitis.**
   Young male patient with low back pain, present at rest with history of red eye and painful heel, raises the suspicion of ankylosing spondylitis. Further examination confirms it by demonstrating tender sacroiliac joint and stiff spine.
2. **Psoriatic Arthritis.**
   There is family history of psoriasis. Although there is no rash but in 20% of cases joint pains precede rash. Psoriatic arthritis can also present with sacroilitis.
3. **Enteropathic Arthritis**
   Due to family history of ulcerative colitis, this has to be considered as well.

b)

- X-ray sacroiliac joint; to look for reduced joint space, followed by erosions and sclerosis of these joints.
- X-ray lumbar spine to see ossification of the annulus fibrosus, calcification of anterior and lateral ligaments and squaring and generalized demineralization of the vertebral bodies.
- X-ray chest to look for apical fibrosis, seen in patients with ankylosing spondylitis.
- HLA-B27 typing will be done. It is found in 90% of patients with ankylosing spondylitis, 75% of reactive arthritis, and 50% of inflammatory bowel disease.

c)

He will be given NSAIDS, preferably Indomethacin 25-50 mg, three times in a day. Tumor necrosis factor inhibitors i.e. etanercept (25mg s/c twice a week) or infliximab (5mg/kg every other month) will be started. Meanwhile rest, local application of heat will be done. Passive range of motion and isometric tests will be advised. Occupational rehabilitation will be advised.

Q.No.45 A 35 years old farmer is brought to you in emergency department with history of snake bite 3 hours ago. On physical examination, pulse rate 80/min, temperature 99°F, B.P. 100/70 mmHg with grossly swollen left leg. Systemic examination is normal.

a) **Discuss steps of management with their justification.**
b) **What investigation will you like to do in emergency and why?**
c) **How you will mange in this case?**

a)

- Patient and the bitten part will be immobilized.
- Minimal handling of the bitten area will be done.
- Ice and tourniquet application will not be done.
- 4-6 vials of antivenom will be given in 250-500 ml of saline, slowly, intravenously.
- Tetanus immunoglobulin with tetanus toxoid will be given.

- As he has fever and his leg is grossly swollen, so antibiotics with gram positive cover will be given.
- Repeated doses of 2 vials every 6hours for up to 18 hours will be given.
- I/V line will be maintained and adequate hydration will be ensured to maintain good urinary output.
- Diazepam.

b)

1. Complete blood count, to determine any associated hemolysis, raised TLC count due to cellulitus or thrombocytopenia due to disseminated intravascular coagulation (DIC). Peripheral smear examination may reveal fragmented RBC's.
2. PT, APTT, INR (Prothrombin time, activated partial thromboplastin time): snake bite can lead to DIC as well as isolated coagulopathy. If they are prolonged, then fibrin degradation products FDP's will be advised.
3. Blood grouping and cross-matching will be done, as due to coagulation, he might bleed from any site and may need blood / fresh frozen plasma.
4. Serum urea and creatinine, to look for determining renal function due to acute tubular necrosis secondary to snake venom.
5. Urine C/E to look for haematuria.

Q.No.46. A bus driver of 23 years of age consults the doctor with history of intermittent fever, body aches, and feeling unwell for the last 3 weeks. On examination temperature 38°C, several slightly tender enlarged cervical lymphnodes are palpable. In the left groin some enlarged lymph nodes are noted. The rest of the examination was normal. Investigations showed Hb 12.5 gm%, ESR 40/1st hour, WCC 6 $\times 10^9$ /L, peripheral film shows abnormal mature monocytes. Serum bilirubin 1mg%, ALT 80 I.U. serum alkaline Phosphatase 280 I.U. X-ray chest is normal.

a) **Give five differential diagnoses.**
b) **What are the five most useful investigations?**

HIV
Lymphoma

a)

1. **Infectious Mononucleosis.**
   Fever, myalgias, slightly tender lymphnodes, normal WBC with abnormal monocytes and slightly elevated liver enzymes suggest the diagnosis.
2. **Lymphoproliferative Disorder** e.g.
   a. Hodgkin's lymphoma.
   b. Myelomonocytic leukemia.
   In this age group, lymphadenopathy with abnormal monocytes in the blood film raises the suspicion of lymphoproliferative disorder.
3. **Cytomegalovirus Infection.**
4. **HIV seroconversion.**
5. **Acute toxoplasmosis.**